

Case Report

Accidental ligature strangulation due to crop thrasher

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Abstract

Forty five years male was accidentally strangled when his shawl was caught in a moving electrical crop thrasher used for separating the grains from dry crops kept after cutting in the field. He was immediately taken to the nearest hospital. He was unconscious. He died after six days. Accidental ligature strangulation in this fashion due to such electrical machine is very rare and not reported previously to the best of our knowledge.

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1. Introduction

Accidental strangulation though rare, is occasionally reported and the circumstantial evidence alone can sufficiently indicate the accidental nature of the occurrence. The death is almost instantaneous in strangulation and delayed death is very rare. Accidental death of a person while working in the field used for crop cultivation is usually due to poisoning, snakebite, lightning and electric shock. A case of accidental ligature strangulation due to entrapment of a shawl in the moving crop thrasher is presented.

2. Case report

A male aged 45 was brought to the hospital in an unconscious condition with history of accidental strangulation

due to entrapment of shawl in the moving electrical crop thrasher. The electric machine was used to separate the grains from dry crop kept after cutting in the field. On hospitalization, general condition was poor and there was difficulty in breathing. Respiratory rate was 40/min and pulse was 100/min. There was no cyanosis, vomiting and convulsion. Pupils were of normal size, sluggishly reacting to light. Patient was unconscious not responding to verbal and deep painful stimuli. The plantar reflex was extensor. A faint reddish ligature mark was present around neck at the level of thyroid cartilage, transversely placed. Multiple abrasions were present over neck and scapular region on back. No evidence of surgical emphysema was present. Patient was given injection tetanus toxoid, deriphyllin, ampicillin, dexamethasone, rantac, and intravenous fluids. The patient was also given oxygen inhalation. In the next 2–4 days, the general condition was not improved and the patient remained unconscious. Thereafter bilateral crepts and stridor developed. Deep tendon reflexes were present but the planter reflex becomes flexor. Injection monocef, gentamycin and hydrocortisone were also added in the treatment. Later on, the condition deteriorated and the pulse become feeble, respiration gasping and blood

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pressure was not recordable. He was kept on ventilator and was given injection adrenaline, sodium bicarbonate and effcorline. But the condition worsened and the patient died after a period of six days of admission. Body was sent to mortuary for autopsy after preliminary police investigation.

2.1. Autopsy findings

On external examination, skin was pale and dried, and there was no petechiae or ecchymosis. Intravenous injection marks were present over both cubital fossa. Ligature mark was present around neck as an abrasion with peeling scab of size 13×1.2 in. (Fig. 1). The mark was transversely placed and situated at the level of thyroid cartilage on anterior aspect and 4 in below mastoid tip on both sides. It was faint on the back of neck. There were multiple abrasions with peeling scab on neck and scapular region on left side. On internal examination, dark brown haematoma of size 1.5×1 cm was present in the muscles of neck on right side corresponding to ligature mark. Bruising of the subcutaneous tissue was present underneath the ligature mark on anterior aspect of neck. Hyoid bone and laryngeal cartilage were intact. Mucosa of respiratory tract was congested and showed shower of petechiae in the larynx and epiglottis. Thyroid gland was congested and showed haemorrhages on cut section. Visceral organs were congested. Lungs were congested and oedematous with sub-pleural petechiae. Brain was softened and oedematous.



Fig. 1. Photograph of neck showing ligature mark of strangulation with peeling scab.

3. Discussion

This is an unusual case of accidental ligature strangulation due to crop thrasher. Whilst it is recognized that consciousness is lost within 10–15 s¹ and death is immediate;² the delayed death in ligature strangulation is very rare. In the present case of accidental ligature strangulation, the victim was hospitalized in an unconscious condition and survived for six days, and died due to cerebral edema and lung edema.

Accidental ligature strangulation is rare and usually occurs at the extremes of life or otherwise healthy adults, usually under the influence of alcohol or drug. It occurs when an article of clothing, a neck band, a cord or a chain gets entangled in a moving machine, is tightly drawn round the neck all of a sudden, as occasionally seen in mill worker.^{1,2} Porter who carries loads on their back with a supportive belt around the forehead may get accidentally strangled if the belt around the forehead slips down to the neck.³

As reported,⁴ the first case of accidental strangulation brought to public attention was the world famous dancer Isadora Duncan who died on 14 September 1929. The long scarf, which she was wearing, became caught in the wire wheels of her Buggati car, stopping the vehicle. Isadora died at the spot and was later found to have sustained a fractured larynx and carotid artery injury. Since then, number of cases of accidental ligature strangulation has been reported, with no recorded survivors. However, Gowens et al.⁴ first reported a survived case of accidental strangulation from scarf while moving in a cycle-propelled rickshaw as a part of Edinburgh Festival in 2001. Bhullar and Aggarwal⁵ and Aggarwal and Agarwal⁶ also reported few cases of accidental ligature strangulation due to entanglement of the chunni (long scarf worn around neck by Indian women) while moving in a vehicle like rickshaw and motorcycle. Thus, all reported cases of accidental strangulation involved vehicle and chunni/scarf; all occurred on the road and the victims died immediately.

Shetty and Shetty⁷ reported a case of young girl who was accidentally strangled when her chunni was caught in a moving electrical grinder at home. In the present case, there was delayed death in ligature strangulation due to entrapment of a shawl in the moving crop thrasher while separating the grains from dry crop in the field. Accidental ligature strangulation in this fashion due to electrical crop thrasher is extremely uncommon and not reported previously.

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References

1. DiMaoi DJ, DiMaio VJM. *Forensic pathology*. 1st ed. Boca Raton: CRC Press Inc.; 1993. p. 231–36.
2. Subrahmanyam BV, editor. *Modi's medical jurisprudence and toxicology, Sec-I*. 22nd ed., New Delhi: Butterworths; 1999. p. 261–72.
3. Nandy A. *Principles of forensic medicine*. 2nd ed. Calcutta: New Central Book Agency Pvt. Ltd.; 2004. p. 327.
4. Gowens PA, Davenport RJ, Kerr J, Sanderson RJ, Marsden AK. Survival from accidental strangulation from a scarf resulting in laryngeal rupture and carotid artery stenosis: the Isadora Duncan syndrome. A case report and review of literature. *Emerg Med J* 2003;**20**:391–3.
5. Bhullar DS, Aggarwal OP. A rare case of accidental strangulation – a case study. *J For Med Tox* 1997;**14**(2):26.
6. Aggarwal NK, Agarwal BB. Accidental strangulation in a cycle rickshaw. *Med Sci Law* 1998;**38**:263–5.
7. Shetty M, Shetty BS. Accidental ligature strangulation due to electric grinder. *J Clin Forensic Med* 2006;**13**(3):148–50.